

The following Listing of Claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

1. (Currently Amended) An impeller of a centrifugal fan comprising:
a main plate configured to rotate around a rotating shaft, the main plate being constructed of resin material;
a plurality of hollow blades annularly disposed around the rotating shaft, each of the hollow blades including
a first surface portion integrally molded with or fixed to the main plate, the first surface portion being constructed of resin material, and
a second surface portion attached to the first surface portion to form portion,
the first and second surface portions forming a hollow space therebetween,
the second surface portion being constructed of resin material; and
a side plate integrally molded with or fixed to the first surface portions by laser welding, the side plate being constructed of resin material and being molded separately from the first surface portions,
the hollow blades being disposed between the main plate and the side plate,
the main plate, the hollow blades and the side plate being configured to take in a gas from a rotating shaft direction and blow out the gas in a direction intersecting the rotating shaft,
each of the second surface portions forming at least part of a negative-pressure surface, and each of the first surface portions forming at least part of a positive pressure surface,
the hollow blades including a blade shape retaining mechanism to prevent the second surface portions from being deformed toward outer peripheral sides of the second surface portions by a centrifugal force, and
each of the first surface portions having an edge portion extending from a side plate end thereof toward a respective one of the second surface portions, with each edge portion being laser welded to the side plate, and each edge portion having an end surface that abuts the respective one of the second surface portions at a side plate end thereof to form part of the blade shape retaining mechanism.

2. (Currently Amended) An impeller of a centrifugal fan comprising:
a main plate configured to rotate around a rotating shaft, the main plate being constructed of resin material;
a plurality of hollow blades annularly disposed around the rotating shaft, each of the hollow blades including
a first surface portion integrally molded with or fixed to the main plate, the first surface portion being constructed of resin material, and
a second surface portion attached to the first surface portion to form portion,
the first and second surface portions forming a hollow space therebetween,
the second surface portion being constructed of resin material; and
a side plate integrally molded with or fixed to the first surface portions by laser welding, the side plate being constructed of resin material and being molded separately from the first surface portions,
the hollow blades being disposed between the main plate and the side plate,
the main plate, the hollow blades and the side plate being configured to take in a gas from a rotating shaft direction and blow out the gas in a direction intersecting the rotating shaft, and
the second surface portion being configured to remain attached to the first surface portion while a centrifugal force resulting from the rotation of the main plate acts thereon,
each of the first surface portions forming at least part of a positive pressure surface,
the hollow blades including a blade shape retaining mechanism to prevent the second surface portions from being deformed toward outer peripheral sides of the second surface portions by a centrifugal force, and
each of the first surface portions having an edge portion extending from a side plate end thereof toward a respective one of the second surface portions, with each edge portion being laser welded to the side plate, and each edge portion having an end surface that abuts the respective one of the second surface portions at a side plate end thereof to form part of the blade shape retaining mechanism.

3. (Currently Amended) An [[The]] impeller of claim 1, wherein of a centrifugal fan comprising:

a main plate configured to rotate around a rotating shaft, the main plate being constructed of resin material;

a plurality of hollow blades annularly disposed around the rotating shaft, each of the hollow blades including

a first surface portion fixed to the main plate by laser welding, the first surface portion being constructed of resin material and being molded separately from the main plate, and

a second surface portion attached to the first surface portion to form a hollow space therebetween, the second surface portion being constructed of resin material; and

a side plate integrally molded with or fixed to the first surface portions, the side plate being constructed of resin material,

the hollow blades being disposed between the main plate and the side plate, the main plate, the hollow blades and the side plate being configured to take in a gas from a rotating shaft direction and blow out the gas in a direction intersecting the rotating shaft,

each of the second surface portions forming at least part of a negative-pressure surface, and each of the first surface portions forming at least part of a positive pressure surface,

the hollow blades including a blade shape retaining mechanism to prevent the second surface portions from being deformed toward outer peripheral sides of the second surface portions by a centrifugal force, and

each of the first surface portions having an edge portion extending from a main plate end thereof toward a respective one of the second surface portions, with each edge portion being laser welded to the main plate, and each edge portion having an end surface that abuts the respective one of the second surface portions at a main plate end thereof to form part of the blade shape retaining mechanism the second surface portion is attached to the first surface portion by inserting a portion of the second surface portion into the first surface portion.

4. (Currently Amended) An [[The]] impeller of claim 1, wherein of a centrifugal fan comprising:

a main plate configured to rotate around a rotating shaft, the main plate being constructed of resin material;

a plurality of hollow blades annularly disposed around the rotating shaft, each of the hollow blades including

a first surface portion fixed to the main plate by laser welding, the first surface portion being constructed of resin material and being molded separately from the main plate, and

a second surface portion attached to the first surface portion to form a hollow space therebetween, the second surface portion being constructed of resin material; and

a side plate integrally molded with or fixed to the first surface portions, the side plate being constructed of resin material,

the hollow blades being disposed between the main plate and the side plate,

the main plate, the hollow blades and the side plate being configured to take in a gas from a rotating shaft direction and blow out the gas in a direction intersecting the rotating shaft, and

the second surface portion being configured to remain attached to the first surface portion while a centrifugal force resulting from the rotation of the main plate acts thereon, each of the first surface portions forming at least part of a positive pressure surface, the hollow blades including a blade shape retaining mechanism to prevent the second surface portions from being deformed toward outer peripheral sides of the second surface portions by a centrifugal force, and

each of the first surface portions having an edge portion extending from a main plate end thereof toward a respective one of the second surface portions, with each edge portion being laser welded to the main plate, and each edge portion having an end surface that abuts the respective one of the second surface portions at a main plate end thereof to form part of the blade shape retaining mechanism the first surface portions and the side plate are separately molded.

5. (Cancelled)
6. (Currently Amended) The impeller of claim 1 ~~claim 5~~, wherein the side plate includes a material with a higher light transmittance than a material of the first surface portions.
7. (Currently Amended) The impeller of claim 1 ~~claim 4~~, further comprising a side plate-side guide mechanism to position the hollow blades in the side plate.
8. (Cancelled)
9. (Cancelled)
10. (Currently Amended) The impeller of claim 3 ~~claim 9~~, wherein the main plate includes a material with a higher light transmittance than a material of the first surface portions.
11. (Currently Amended) The impeller of claim 3 ~~claim 8~~, further comprising a main plate-side guide mechanism to position the hollow blades in the main plate.
12. (Cancelled)
13. (Withdrawn) The impeller of claim 1, wherein the second surface portions include plural concavo-convexities formed in surfaces of the second surface portions.
14. (Previously Presented) A centrifugal fan comprising:
the impeller of claim 1; and
a drive mechanism configured to rotate the main plate.
15. (Cancelled)

16. (Cancelled)

17. (Currently Amended) The impeller of claim 2 ~~claim 16~~, wherein the side plate includes a material with a higher light transmittance than a material of the first surface portions.

18. (Cancelled)

19. (Cancelled)

20. (Currently Amended) The impeller of claim 4 ~~claim 19~~, wherein the main plate includes a material with a higher light transmittance than a material of the first surface portions.

21. (Cancelled)

22. (Cancelled)

23. (New) The impeller of claim 1, wherein the second surface portion is attached to the first surface portion by inserting a portion of the second surface portion into the first surface portion.

24. (New) The impeller of claim 2, further comprising a side plate-side guide mechanism to position the hollow blades in the side plate.

25. (New) The impeller of claim 4, further comprising a main plate-side guide mechanism to position the hollow blades in the main plate.

26. (New) A centrifugal fan comprising:
the impeller of claim 2; and
a drive mechanism configured to rotate the main plate.

27. (New) A centrifugal fan comprising:
the impeller of claim 3; and
a drive mechanism configured to rotate the main plate.

28. (New) A centrifugal fan comprising:
the impeller of claim 4; and
a drive mechanism configured to rotate the main plate.

29. (Withdrawn-New) The impeller of claim 2, wherein
the second surface portions include plural concavo-convexities formed in surfaces of
the second surface portions.

30. (Withdrawn-New) The impeller of claim 3, wherein
the second surface portions include plural concavo-convexities formed in surfaces of
the second surface portions.

31. (Withdrawn-New) The impeller of claim 4, wherein
the second surface portions include plural concavo-convexities formed in surfaces of
the second surface portions.